

CLAIMS

What is claimed is:

1. A method for deamidating a milk protein comprising bringing a denatured milk protein into contact with an enzyme which exerts a deamidating effect by acting
5 directly on an amide group of a protein without cleaving a peptide bond or crosslinking the protein.

2. A method according to Claim 1 wherein said enzyme is an enzyme having said effect on a protein having a molecular weight of 5,000 or more.

10

3. A method according to Claim 1 wherein said enzyme is an enzyme having said effect on a protein having a molecular weight of 10,000 or more.

15

4. A method according to Claim 1 wherein said enzyme is derived from a microorganism.

5. A method according to Claim 4 wherein said microorganism belongs to a genus of Chryseobacterium, Flavobacterium, Empedobacter, Sphingobacterium, Aureobacterium or Myroides.

20

6. A method according to Claim 4 wherein said microorganism is Chryseobacterium sp. No. 9670 (FERM BP-7351) belonging to the genus of Chryseobacterium.

7. A method according to Claim 1 wherein said denatured milk protein is a denatured
25 milk protein obtained by a denaturation treatment with one or more selected from the

group consisting of heat, pressure, acid, alkali, denaturing agent, oxidant, reducing agent and chelating agent.

8. A method for producing a deamidated milk protein comprising:

5 a step for denaturing a milk protein; and,

 a step for deamidating a denatured milk protein obtained in the previous step by bringing said denatured milk protein into contact with an enzyme which exerts a deamidating effect by acting directly on an amide group of a protein without cleaving a peptide bond or crosslinking the protein.

10

9. A method according to Claim 8 wherein said enzyme is an enzyme having said effect on a protein having a molecular weight of 5,000 or more.

10. A method according to Claim 8 wherein said enzyme is an enzyme having said
15 effect on a protein having a molecular weight of 10,000 or more.

11. A method according to Claim 8 wherein said enzyme is derived from a microorganism.

20 12. A method according to Claim 11 wherein said microorganism belongs to a genus of Chryseobacterium, Flavobacterium, Empedobacter, Sphingobacterium, Aureobacterium or Myroides.

13. A method according to Claim 11 wherein said microorganism is Chryseobacterium
25 sp. No. 9670 (FERM BP-7351) belonging to the genus of Chryseobacterium.

14. A method according to Claim 11 wherein said step for the denaturation consists of a treatment with one or more selected from the group consisting of heat, pressure, acid, alkali, denaturing agent, oxidant, reducing agent and chelating agent.

5

15. A method for denaturing a milk protein comprising bringing a milk protein into contact with an enzyme which exerts a deamidating effect by acting directly on an amide group of a protein without cleaving a peptide bond or crosslinking the protein.

10 16. A method according to Claim 15 wherein said enzyme is an enzyme having said effect on a protein having a molecular weight of 5,000 or more.

17. A method according to Claim 15 wherein said enzyme is an enzyme having said effect on a protein having a molecular weight of 10,000 or more.

15

18. A method according to Claim 15 wherein said enzyme is derived from a microorganism.

19. A method according to Claim 18 wherein said microorganism belongs to a genus of
20 Chryseobacterium, Flavobacterium, Empedobacter, Sphingobacterium, Aureobacterium or Myroides.

20. A method according to Claim 18 wherein said microorganism is Chryseobacterium sp. No. 9670 (FERM BP-7351) belonging to the genus of Chryseobacterium.

25

21. A method for producing a protein degradation product comprising a step for

denaturing a protein by a method according to any one of Claims 15 to 20 and a step for bringing a denatured protein obtained in the previous step into contact with a protease.